

## Oil derived from Pino radiata seeds collaborates with the control of obesity by involving the differentiation and proliferation of resident cells of visceral adipose tissue

Obesity and its comorbidities are a serious public health problem worldwide. In this sense, there are diverse pharmacological and non-pharmacological alternatives that aimed at its treatment. Recently, our research group, achieved to produce an oil derived from *Pinus radiata* seeds which, was administered on a murine model of high fat diet (HFD)-induced obesity, where it positively modified metabolic, inflammatory and biochemical parameters inherent to obesity, this associated with decreased weight and improved systemic insulin response. In order to delve into the cellular mechanisms that the consumption of this oil could have in adipose tissue, Visceral adipose tissue sections isolated from obese mice that consumed oil derived from *Pinus radiata* seeds were analyzed histologically versus a control. We observed that the visceral adipose tissue of rodents treated with oil derived from *Pinus radiata* seeds presented smaller adipocytes, with presence of adipogenic niches compared to the obese control group. The expression profile of the markers CD29+/CD45-/CD34+ on this niches, suggests that they correspond to preadipocytes. Furthermore, the expression of the marker Ki 67, indicates high cell proliferation in these areas. This observation is consistent with increased expression of mRNA for PPAR- $\gamma$ , a known adipocyte proliferation factor. Additionally, a higher expression of mRNA for UCP1 was observed in this tissue compared to the control group, suggesting greater thermogenic capacity.

Thus, the administration of oil derived from radiata pine seeds *in vivo* would promote the proliferation of immature cells resident in visceral adipose tissue. These findings are in agreement with the metabolic, inflammatory and biochemical effects previously observed *in vivo*, suggesting that the consumption of this product based on Pino radiata seed oil could be clinically relevant in the control of obesity in humans.

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### Biography

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